

**REMARKS**

The following remarks are in response to the Official Action mailed April 4, 2006.

**Claim Rejection - 35 U.S.C. 102 - *Schenk et al.***

Claims 1-6 and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,090,518 to *Schenk et al.* The Examiner contends that *Schenk* discloses all of the recitations included within the claim for which it is cited against. The Examiner also states in the Official Action that "functional language" fails to impart any structure to the claims. As the Examiner has not specified what functional language he is referring to, the Applicants are unclear as to this aspect of the Official Action.

Independent claim 1 includes the recitation that each of a hydraulic service brake actuator and non-hydraulic electric parking brake actuator are "operable independently of the other for service brake operation and parking brake operation."

With regard to this recitation, at page 3 of the Official Action the Examiner states that "a hydraulic service brake actuator 36 or 38 and a non-hydraulic electric parking brake actuator 36 or 38 (note column 4, lines 9-16), each of which is operable independently of the other for service brake operation and parking brake operation" is disclosed in *Schenk*. Thus, the Examiner is asserting that elements referenced by character numerals 36 and 38 in *Schenk* include a hydraulic service brake actuator and a non-hydraulic electric parking brake actuator, which are operable independently.

*Schenk* discloses a brake that includes two units 24 and 26. The two units 24, 26 each include electric motors 28, 38 although *Schenk* does disclose that one of the electric motors 28, 38 may be replaced by a hydraulic pressure actuator

with the use of a master cylinder. Each motor unit 24 and 26 also includes, as mentioned before, an electric motor 28, 38 and a piezoelectric crystal or element 36, 46. The motor unit 24, which encompasses electric motor 28 and piezoelectric crystal 36 is defined as primary actuating unit and motor unit 26, which encompasses electric motor 38 and piezoelectric element 46 is defined as a secondary actuating unit. Thus, even if one was to replace one of the electric motors 28, 38 from the motor units 24, 26 with a hydraulic pressure actuator, each individual motor unit would still include the piezoelectric elements 36, 46.

In *Schenk*, for a braking load to be applied, the motor units 24 and 26 must act together or in unison. Thus, a parking brake load is generated by the combined action of motor units 24 and 26. Indeed, it is the same for a service braking load in which both motor units 24 and 26 cooperate to generate the required service braking load. Further, as discussed at column 6, lines 30-35, voltage descends from a controller 54 to the piezoelectric crystals or elements 36 and 46 as soon as a pedal 50 is actuated. Thus, motors 24 and 26 are actuated simultaneously as opposed to independently. This is further illustrated with reference to Figures 2 and 3 of *Schenk*.

In Figure 2, the X-axis illustrates the movement of motors 24 and 26. Motor 24 is represented by  $M_1$  and  $G_1$  and motor 26 is represented by  $M_2$  and  $G_2$ . The Ms refer to the electric motors while the Gs refer to the piezoelectric elements. It can be seen from a review of Figure 2 that  $M_2$ , i.e., motor 26, cannot be operated without motor 24 already being engaged. Thus, although one can make an argument that motor 24 is operable independently from motor 26 since at zero time  $M_1$  is engaged while  $M_2$  is not, it is clear from the figure that  $M_2$  cannot be engaged without  $M_1$ . Therefore, even if one were to assume  $M_1$  or  $M_2$  included a hydraulic actuator, the hydraulic actuator of  $M_1$  or

M<sub>2</sub> would not be independently operable from the electric actuator of the other M<sub>1</sub>, M<sub>2</sub>.

In the Official Action, the Examiner has mistakenly defined piezoelectric element 36 as being a hydraulic service brake actuator or a non-hydraulic parking brake actuator. Unfortunately, while *Schenk* does disclose replacing the electric brake actuator of motors 24 and 26, it does not disclose replacing the piezoelectric crystals or elements 36, 46 of the individual motors. In either case, the piezoelectric element 36 is not operable independently from motor 38 as already discussed with regard to Figure 2 of *Schenk*.

And if the Examiner is asserting that the piezoelectric crystal may be considered an electric parking brake actuator, Applicants strongly disagree. First, the piezoelectric crystal 36 contributes only a portion of the braking load applied by the motor unit 24. The piezoelectric crystal 36 is not capable of, or intended to, apply a braking load sufficient to act as an electric parking brake actuator all by itself. Thus, the piezoelectric crystal cannot be considered an electric parking brake actuator in and of itself.

*Schenk* also is deficient in that it does not disclose two different or independent actuators in which one is a hydraulic service brake actuator and the other is an electric parking brake actuator in accordance with claim 1. *Schenk* does disclose that motor units 24 and 26 can have a service braking function and a parking brake function, but for either function, both motor units 24 and 26 are actuated. That is, it is not a case for example that one of the motor units 24 or 26 is engaged when a parking brake load is applied. On the contrary, in *Schenk*, both of the motor units 24 and 26 are actuated during a service brake operation and a parking brake operation. The process of applying a service brake load or a parking brake load

is always commenced with motors 28 and 38 of motor units 24 and 26 being engaged. And the piezoelectric crystals 36 and 46 are only actuated in response to the motors 28 and 38, respectively. The entire disclosure of *Schenk* relates to the incremental application of a braking load between the two motor units 24, 26 to progressively increase the overall total brake load.

The sequence of load application disclosed in *Schenk* is that motors 28 and 38 are initially energized along with the piezoelectric crystal 36. Thereafter, the piezoelectric crystal is de-energized and the piezoelectric crystal 46 is re-energized. Upon de-energization of piezoelectric crystal 36, the motor 28 moves the piezoelectric crystal 36 axially. Further cycles de-energize piezoelectric crystal 46 and energize piezoelectric crystal 36 and with each cycle, the motor associated with the de-energized crystal, moves that crystal axially. This provides a very clear indication that there is no independent operation of the motor units 24 and 26, and further, that there is no intention for those motor units to operate in a manner so that one of the units provides service brake operation and the other provides parking brake operation. In contrast, claim 1 is clear on the requirement that the disc brake caliper include a first actuator that has a service braking capability and a second actuator that has a parking brake capability. In *Schenk*, the combination of motor units 24 and 26 either provide a service braking feature or a parking braking feature, but it is not possible to operate one of the motor units as a serving brake actuator while the other one acts as a parking brake actuator.

Applicants thus asserts that claim 1 as presently written is condition for allowance and should be patentable over the art cited.

As stated before the Applicants are unsure as to what the Examiner is referring to with regard to the functional language he claims is included in the claims of the present application. Applicants assumes that the Examiner is referring to the term "operable independently." However, in reviewing caselaw regarding this matter, similar language has been held to be structural language, never mind functional language that was given patentable weight. For instance, in *ex parte Mitchell*, 30 U.S.P.Q. 94, 95 (B.P.A.I. 1936), the phrase that "the conveyer members are adapted to engage simultaneously each of the seam portions of the fabric at their initially encountered ends and carried engaged portions along convergent lines," was determined to be structural by the Board of Patent Appeals. Further, the Federal Circuit has interpreted functional language in an apparatus claim as requiring that an accused apparatus possesses the capability of performing the recited function. *Intel Corp. v. United States International Trade Commission*, 946 F2d 821, 832 (Fed. Cir. 1991). Thus, since "independently operable" cannot be performed by the accused apparatus, "independently operable" is not functional language, but rather structural. Either way the term "independently operable" must be given patentable weight.

Applicants acknowledge with appreciation that claims 12 and 13, although objected to as being dependent upon rejected base claims, would be allowable if rewritten in independent form.

Applicants assert that claims 1-6 and 8-11 as well as claims 12 and 13 of the present application should be deemed patentable.

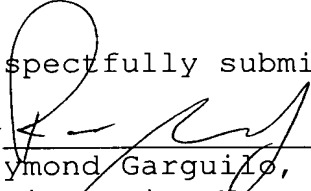
As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he/she telephone Applicants' attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

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Respectfully submitted,

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